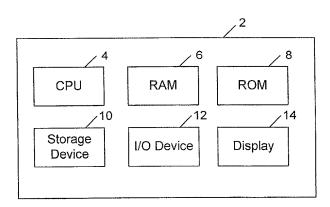
FIG. 1



Title: Implicit-Explicit Switching For Finite Element Alalysis Atty. Docket No. M-9939 US Sheet 2 of 8 200 START FIG. 2 $t = \Delta t^{implicit}$ 202 Begin Step Using Implicit Method 210 i = 1232 204 Advance Time: Initialize Implicit $t = t + \Delta t^{implicit}$ Method Compute Implicit $t = min (t, t^{end})$ Solution $\mathbf{u}^{i}(t)$ 208 NO 214 206 Next Iteration YES Test For Test For i = i + 1End Time Convergence NO YES 212 **END** NO **Test Iteration** Limit, Energy YES 230 Switch To Switch To **Explicit Method** $t = t - \Delta t^{implicit}$ Implicit Method $t = t + \Delta t^{implicit}$ -218 Initialize Explicit Method $\mathbf{v} = \Delta \mathbf{u}^{\text{last}} / \Delta t^{\text{implicit}}$ a = 0220 Set Switch Time $t^{\text{switch}} = t + t^{\text{explicit}_\text{max}}$ -222 Compute Explicit Solution u(t) 228 224 YES Test For Advance Time $t = t + \Delta t^{\text{explicit}}$ End Time NO NO Test For Switch Time YES

Inventor: Bradley N. Maker

Test For Switch Time

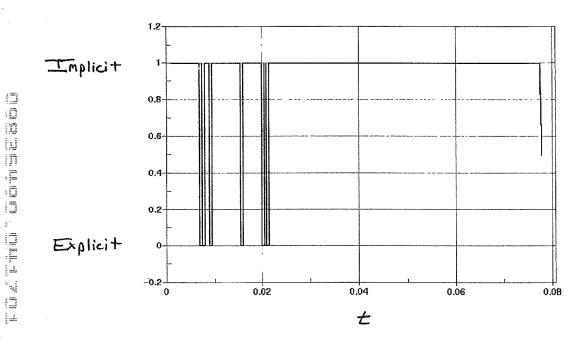
| YES

328

NO

Advance Time $t = t + \Delta t^{\text{explicit}}$

FIG. 4A

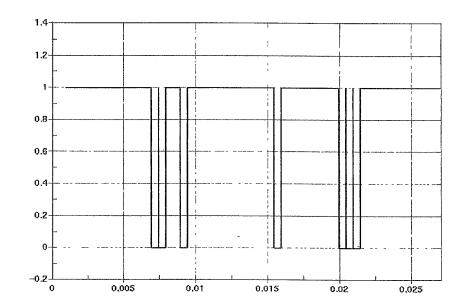


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FIG. 43

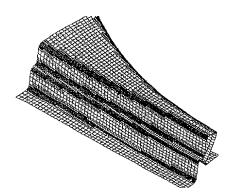






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FIG. 4C



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FIG. 4D

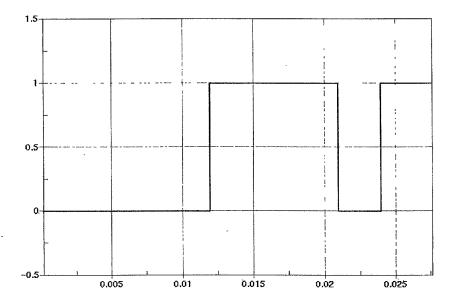


FIG. 5A

Inventor: Bradley N. Maker Title: Implicit-Explicit Switching For Finite Element Alalysis Atty. Docket No. M-9939 US Sheet 8 of 8

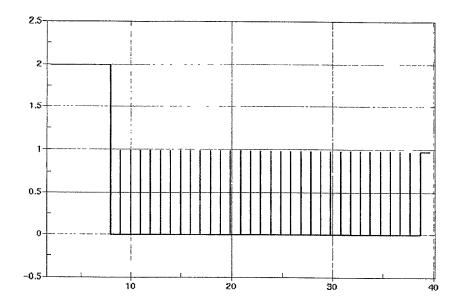


FIG. 5B

